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NOCTUID MOTHS OF THE AMERICAN GENUS *EUSCEPTIS* HÜBNER

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This paper, a revision of the genus *Eusceptis* Hübner, is the first of a proposed series of revisionary papers on the American species of the noctuid subfamily Acontiinae. The purpose of this paper is to provide keys, illustrations, and descriptions that will facilitate identifications, and to assemble the accumulated knowledge pertaining to the distribution and biology of the species of the genus. The revision is the result of a study of the literature and the specimens in the collection of the United States National Museum, supplemented by specimens and information received from the following individuals and institutions: D. S. Fletcher, British Museum (Natural History), London, England; W. Forster, Zoologische Sammlung des Bayerischen Staates, Munich, Germany; H. K. Clench, Carnegie Museum, Pittsburgh, Pa.; J. G. Franclemont, Cornell University, Ithaca, N.Y.; F. H. Rindge, American Museum of Natural History, New York, N.Y.; F. F. Yépez, Universidad Central de Venezuela, Maracay, Venezuela; P. Köhler, Buenos Aires, Argentina; C. M. Biezanko, Pelotas, Rio Grande do Sul, Brazil; and C. V. Covell, Jr., Louisville, Ky. Their assistance is gratefully acknowledged.

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Genus *Eusceptis* Hübner

Eusceptis Hübner, 1823, *Zuträge zur Sammlung exotischer Schmettlinge* [sic], Zweites Hundert, p. 21.—Hampson, 1910, *Catalogue of the Lepidoptera Phalaenae in the British Museum*, vol. 10, p. 793.—Sherborn, 1922, *Index animalium 1801-1850*, p. 2250.—Schulze, et al, 1929, *Nomenclator animalium generum et subgenerum*, vol. 2, p. 1232.—Hemming, 1937, "Hübner," vol. 2, p. 198.—Neave, 1939, *Nomenclator zoologicus*, vol. 2, p. 370. (Type species: *Eusceptis irretita* Hübner, monobasic.)

Eugraphia Guénée, 1852, *Histoire naturelle des insectes: Species général des lépidoptères*, vol. 6 (Noctuélites, II), p. 208.—Walker, 1857, *List of the specimens of lepidopterous insects in the collection of the British Museum*, pt. 12, p. 776.—Scudder, 1882, *Bull. U.S. Nat. Mus.*, no. 19, pt. 2, p. 119.—Druce, 1889, in Godman and Salvin, *Biologia Centrali-Americana, Insecta, Lepidoptera, Heterocera*, vol. 1, p. 304; 1896, *Ann. Mag. Nat. Hist.*, ser. 6, vol. 18, p. 42.—Hampson, 1910, *Catalogue of the Lepidoptera Phalaenae in the British Museum*, vol. 10, p. 792.—Strand, 1913, *Arch. Naturg.*, vol. 79 (A), nos. 7-9, p. 62; 1916, *Arch. Naturg.*, vol. 82 (A), nos. 1-13, p. 39.—Schulze, et al, 1929, *Nomenclator animalium generum et subgenerum*, vol. 2, p. 1274.—Draudt, 1939, in Seitz, *Gross-Schmetterlinge der Erde*, vol. 7, p. 397.—Neave, 1939, *Nomenclator zoologicus*, vol. 2, p. 326.—Biezanko, Ruffinelli and Carbonell, 1957, *Rev. Fac. Agron. Univ. Rep. Uruguay*, no. 46, p. 53. (Type species: *Eusceptis irretita* Hübner, monobasic.) [New synonymy.]

The generic names *Eusceptis* Hübner and *Eugraphia* Guénée are isogenotypic. Guénée, 1852, accepted Hübner's specific name, but not his generic name. Instead, he proposed *Eugraphia* as the generic name for *irretita* Hübner. The Hübnerian generic name has also been ignored in all subsequent taxonomic treatments and in all catalogs.

Head with proboscis well developed; labial palpi small, nearly porrect, very slightly curved dorsad, third segment very short, second segment three or four times as long, vestiture mainly of appressed scales except longer and looser along ventral margin especially of two basal segments; frons slightly bulbous, smooth or roughened medially, clothed mostly with appressed, incurved scales; eyes large, hemispherical, naked; ocellus small, adnate to upper margin of eye immediately caudad of base of antenna; antenna usually more or less filiform, oval or cuneate in cross section, pubescent ventrally and shortly spiculate, males of *E. effusa* (Druce) and *E. atriora*, new species, with longer spicules. Vestiture of thorax a mixture of scales and hair, no obvious crests present, metathoracic scales occasionally as slight decumbent crest; tympanum shielded dorsally by a large

alular fan of very large scales. Abdomen clothed with hair and scales, no dorsal tufts present, terminal tufts about genitalia in males of *effusa* and *atriora*. Legs rather stout, tarsus longer than tibia; tibia of foreleg about half as long as femur, bearing a well-developed epiphysis, tibia of middle and hindlegs longer; inner spurs of pairs on middle and hindlegs about twice as long as outer spur; tibia of middle leg rough scaled with median and apical tufts. Forewing traingular, apex rounded, termen rounded except slightly excavate before tornus, inner margin slightly sinuous, excavate distally; hindwing more or less rounded, very slightly angled at Cu_1 , inner margin expanded over abdomen in *effusa* and *atriora*, a hair pencil on ventral surface of expansion; venation of general noctuid type, forewing with R_3 from R_2 adnate with R_4 to form small elliptical accessory cell, R_3 stalked with R_4 for one-fourth their length from apex of accessory cell, stalk of R_3+R_4 connate with R_5 at apex of accessory cell, M_1 from mdc slightly below accessory cell, M_2 from just above lower angle of discal cell, M_3 from lower angle of discal cell, Cu_1 from just basad of lower angle of discal cell, M_2 and Cu_1 approximately equidistant from one another, R_1 and Cu_2 from the outer third of the two sides of the discal cell; hindwing with Rs and M_1 connate from upper angle of discal cell, M_2 from below middle of discocellulars, very weak or partially obsolescent, parallel to M_3 , M_3 and Cu_1 connate or shortly stalked from lower angle of discal cell; length of forewing 9 to 17 mm.

Male genitalia with moderate, slightly curved uncus, uncus with a minute hooked spine at apex, a row of basally directed spines along either ventrolateral margin of uncus; scaphium of two straplike sclerotizations, each terminating in a dense hair tuft; juxta irregularly diamond shaped with an elongate, dorsal, straplike sclerotization; valves moderately large, widest just before apex, interfacial processes when present usually asymmetrical, sacculus well developed, usually bearing a large apical or costal spine, a large clasper usually present on one or both valves, absent in *E. irretita* Hübner; when present apex usually hooked, length of clasper usually bearing a row of fascicles of hair and frequently a row of sclerotized triangular dentations; corona short, consisting of about 10 spines, absent in *E. irretita* and *E. koehleri*, new species, coronal spines nearly as long as width of corona; aedeagus moderate, slightly shorter than valve, slightly sinuous, largest at apex, vesica with scobinate areas but no conspicuous cornuti. Female genitalia with valve of ovipositor roundly pointed, moderately sclerotized bearing rows or clumps of large setae basally and clumps of smaller setae distally, posterior apophyses slightly longer than anterior pair; posterior margin of seventh abdominal sternite usually emarginate medially, the lateral lobes thus formed

usually slightly different in size and shape; ductus bursae usually with a sclerotization near ostium, absent in *E. obscura* (Schaus), remainder broad, twisted, and irregularly furrowed; bursa copulatrix membranous, lacking signa, internally uniformly spiculate, the spicules extremely minute except in *E. obscura*.

The immature stages and food plants of the species of *Eusceptis* Hübner are completely unknown.

The genus *Eusceptis* Hübner belongs to the tribe Acontiini and apparently is most closely related to the genus *Acontia* Oechsenheimer (= *Tarache* Hübner). The two were separated in the "Key to the Genera" (Hampson, 1910, Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. 10, pp. 7 and 8) by choices "d²" and "e²," the difference being whether the frons possessed a rounded prominence or no prominence. The species of *Acontia* usually do possess a more bulbous frons than the species of *Eusceptis*, but it is a very slight difference of degree and scarcely sufficiently distinctive to be considered diagnostic for these genera. In the generic diagnoses in the same work, Hampson (op. cit., pp. 723 and 792), indicates that *Acontia* (as *Tarache*) species have a decumbent metathoracic crest which is lacking in *Eusceptis* (as *Eugraphia*) species. In some species of *Acontia* the decumbent crest is no more developed than in the species of *Eusceptis*. The two genera are very closely related, but may be separated by the nature of the uncus of the male genitalia. In *Eusceptis* the uncus has a row of basally directed spines along either ventrolateral margin. The uncus is simple in *Acontia*.

The species of the genus are essentially found in the neotropics, but some species approach the temperate regions of North and South America.

Key to Adults of *Eusceptis*

(Based on wing maculation)

1. Hindwing black **obscura** (p. 6)
Hindwing mostly white, orange, or yellow 2
2. Forewing with some yellow or orange in the terminal area between vein M₁ and the tornus 4
Terminal area of forewing dark 3
3. Dark marginal band of hindwing of male nearly uniform in width; same band of female usually terminating at about Cu₂ **effusa** (p. 7)
Dark marginal band of hindwing of male tapering toward anal angle, width at Rs+M₁ about twice width at Cu₂; same band of female reaching anal angle **atriora** (p. 8)
4. Outer, dark costal mark of forewing about equal in width to median mark. 5
Outer, dark costal mark of forewing about twice as wide as median mark . 6

5. Outer, dark costal mark of forewing looped basad immediately above lower angle of cell; orange terminal line of forewing curved around apex, nearly reaching costa *koehleri* (p. 11)
Outer, dark costal mark of forewing usually not looped basad above lower angle of cell; orange terminal line of forewing not curved around apex. *irretita* (p. 10)
6. Dark basal part of ocellate spots of postmedian area of forewing separate; fringe usually paler than oblique bar, especially at outer edge 7
Dark basal part of ocellate spots of forewing united into a sinuous line; fringe uniformly dark 9
7. Hindwing of male mostly white with orange near outer margin only; subterminal, oblique, gray bar of forewing of female wider at basal end than at apex *extensa* (p. 17)
Hindwing of male mostly orange; subterminal, oblique, gray bar of forewing of female usually widest near apex; distal yellow area level with apex of Cu_2 as wide as or wider than base of oblique, gray bar 8
8. Fringe of forewing more or less concolorous with gray terminal line; terminal line extending from dark apex almost to tornus (South America). *splendens* (p. 13)
Fringe of forewing usually paler than gray terminal line; terminal line not reaching apex or crossing anal vein (Central America) *lelae* (p. 16)
9. Hindwing of male orange; oblique, subterminal, gray bar of forewing divided or paler at middle; hindwing of female lacking a fuscous spot at apex. *robertae* (p. 18)
Hindwing of male with basal half whitish; oblique, subterminal, gray bar not divided or paler at middle; female with fuscous spot present at apex of hindwing *paraguayensis* (p. 19)

Key to Males of *Eusceptis*

(Based on genitalia)

1. Valves lacking a corona (figs. 19 and 20) 2
Valves with a conspicuous short corona (example, fig. 22) 3
2. Sacculus of right valve greatly enlarged, right valve with clasper present distad of sacculus (fig. 20) *koehleri* (p. 11)
Sacculus of right valve not enlarged, subequal to sacculus of left valve, valves simple, clasper absent (fig. 19) *irretita* (p. 10)
3. Left valve lacking a clasper (fig. 22) *obscura* (p. 6)
Left valve with a clasper (example, fig. 23) 4
4. Sacculus of left valve more than half as long as valve, apex of sacculus produced into a large dorsally directed spine (figs. 23 and 24) 5
Sacculus of left valve short, usually decidedly less than half as long as valve, spine of sacculus small or arising from near middle of costal margin (example, fig. 27) 6
5. Costal spine of sacculus of right valve longer than distance from its base to apex of sacculus; sacculus of left valve only slightly wider than sacculus of right valve (fig. 24) *effusa* (p. 7)
Costal spine of sacculus of right valve shorter than distance from its base to apex of sacculus; sacculus of left valve distinctly wider than sacculus of right valve (fig. 23) *atriora* (p. 8)

6. Clasper of left valve short, apex scarcely reaching apical third of valve . . . 7
 Clasper of left valve long, reaching beyond apex of valve 9
7. Saccus of right valve with a spine projecting from the dorsal margin (fig. 29) *extensa* (p. 17)
 Saccus of right valve lacking a spine on the dorsal margin (figs. 25 and 27) 8
8. Clasper of left valve nearly straight, apex slightly clubbed (fig. 25).
 lelae (p. 16)
 Clasper of left valve hooked, apex usually pointed (fig. 27) . . . *splendens* (p. 13)
9. Clasper of right valve short, reaching about to middle of valve (fig. 31).
 robertae (p. 18)
 Clasper of right valve long, reaching slightly beyond apex of valve (fig. 34).
 paraguayensis (p. 19)

Euseptis obscura (Schaus), new combination

FIGURES 7, 8, 22

Acontia obscura Schaus, 1898, Journ. New York Ent. Soc., vol. 6, no. 2, p. 117.

Eugraphia obscura (Schaus).—Hampson, 1910, Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. 10, p. 795, pl. 174, fig. 3.—Draudt, 1939, in Seitz, Gross-Schmetterlinge der Erde, vol. 7, p. 397.

Acontia trilinea Schaus, 1898, Journ. New York Ent. Soc., vol. 6, no. 2, p. 117. [New synonymy.]

Eugraphia trilinea (Schaus).—Hampson, 1910, Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. 10, p. 795, pl. 174, fig. 2.—Draudt, 1939, in Seitz, Gross-Schmetterlinge der Erde, vol. 7, p. 397.

The uniformly black hindwings of this species separate it from all the other known species of the genus. Length of forewing: male, 16 mm.; female, 17mm.

Types: The type of *obscura* (USNM 10658), a female from Guadalajara, Mexico, and that of *trilinea* (USNM 10659), a male from Jalapa, Mexico, are in the collection of the U.S. National Museum.

Distribution: Known only from Guadalajara and Jalapa, Mexico. Only four specimens are known to have been collected.

Remarks: Schaus indicated in the original descriptions that *trilinea* (fig. 7) and *obscura* (fig. 8) might represent the two sexes of a single species. The two names apply to the same species, but it is possible that the specimen named *trilinea* may represent a distinct form. The two known male specimens have the same genitalia (fig. 22), but they differ in maculation of the forewing, one specimen being dark like the type of *obscura*. Because only two males are available for study, it is not known whether specimens exist that are intermediate in maculation of the forewing between the dark type of *obscura* and the orange-streaked type found in *trilinea*. The solution of this problem must of necessity await the collection of more specimens of this species.

Method of determination: By examination of the type.

Eusceptis effusa (Druce), new combination

FIGURES 4, 5, 24

Eugraphia effusa Druce, 1889, in Godman and Salvin, *Biologia Centrali-Americana*, Insecta, Lepidoptera, Heterocera, vol. 1, p. 304, table 28, fig. 12; 1898, *ibid.*, vol. 2, p. 492.—Hampson, 1910, *Catalogue of the Lepidoptera Phalaenae* in the British Museum, vol. 10, p. 794.—Strand, 1913, *Arch. Naturg.*, vol. 79 (A), nos. 7-9, p. 62.—Draudt, 1939, in Seitz, *Gross-Schmetterlinge der Erde*, vol. 7, p. 397.

This species and the following one, *E. atriora*, new species, differ from the other species of the genus in which the ground color of the hindwing is orange, yellow, or white (figs. 1-3, 9-18) in that the forewing distad of the postmedial band (excluding the costal pale spot) is dark (figs. 4-6), lacking the yellow or orange line that extends from tornus toward apex in the terminal area of the forewing of the other species. They also have a medial line of metallic scales in the basal and distal black costal marks of the forewing. The costal marks are uniformly dark in the other species. In addition, the hindwings of males of *effusa* and *atriora* are modified. The inner margin of the hindwing is expanded, upturned and curved over the abdomen. This modified area of the hindwing forms a concavity on the ventral surface and contains a tuft of long hairs. *E. effusa* (Druce) and *E. atriora*, new species, are extremely closely related entities; however, there are a number of differences in maculation and in the male genitalia. One of the more obvious differences is the degree of development of the dark marginal band of the hindwing. In *effusa* males the marginal band of the hindwing is nearly uniform in width and extends from the apex to about Cu_1 . In males of *atriora* the marginal band at $Rs+M_1$ is about twice as wide as at Cu_2 , the band being distinctly tapered and extending from apex to beyond Cu_2 . In the females of *effusa* the marginal band is rather similar to that of the males of *atriora*, but usually it is broader and more truncate at about Cu_2 . In females of *atriora* the marginal band is much like that of *effusa* to Cu_2 , but continues to taper on to the anal angle. One female specimen from Cayuga, Guatemala does have the marginal band terminating in a tapered point, but the band does not extend to the anal angle. There are other differences in maculation between the two species. Those differences and the differences in the male and female genitalia will be discussed in the description of *atriora*. Length of forewing: male, 14 mm.; female, 14 to 15 mm.

Type: The type, a female from Volcan de Chiriqui, Panama, is in the collection of the Königliche Zoologische Museum, Berlin, Germany.

Distribution: Southern Texas to Panama. Specimens from the following localities have been examined. Texas: Brownsville. Mexico: Misantla, Tamazunchale, Poza Rica. Guatemala: Cayuga, Quirigua.

A female from Santa Clara Valley, Costa Rica has been referred to this species by Druce and by Hampson. It will be necessary to examine the specimen to determine whether it is correctly placed. It is possible that it should be referred to the following species, *atriora*.

Remarks: Because I have this species only from localities in or to the north of Guatemala, and because it was not found in the large series of noctuids collected by Zetek and others on Barro Colorado Island, Canal Zone, Panama, the type locality (Panama) cited by Druce might be incorrect. Unless Druce misread the locality label on the type, it does not seem likely that it could be proved that an error might have occurred. On the other hand, the existence of specimens from Costa Rica and/or Panama or the subsequent collection of the species from those countries would certainly eliminate any doubt as to the correctness of the type locality.

Method of determination: This species is easily recognized by the excellent illustration of the female type accompanying the original description.

Eusceptis atriora, new species

FIGURES 6, 23

Head with proboscis well developed; labial palpi small, very slightly curved dorsad, apical segment slightly exceeding ventral margin of frons, third segment very short (0.3 mm.), second segment four times as long, vestiture mainly of appressed, pale yellow scales except longer and looser along ventral margin, especially first segment and base of second segment, dorsum and dorsolateral area of second segment dark brown or black; frons smooth, scarcely exceeding anterior margin of eye, vestiture of appressed, down and incurved pale yellow scales; eyes, large, hemispherical, naked, about equal to frons in width; ocellus small (0.1 mm.), adnate to upper margin of eye immediately caudad of base of antenna; antenna black, filiform, spiculate laterally and ventrally, the spicules of the male about twice as long (0.1 mm.) as those of the female and more numerous. Vestiture of patagia, tegulae, and thorax a mixture of pale yellow hair and scales; a slight decumbent, metathoracic crest present. Abdomen orange dorsally and laterally, pale yellow or white ventrally with terminal black scales on segments 3 to 7 in the females, the males with much less black scaling except on segment 7; dorsal tufts absent. Pectus clothed with large, pale yellow or white scales and long, sparse, white hair; tympanum shielded dorsally by a very large alular fan of broad pale yellow scales. Legs banded with dark brown and pale yellow or white scales, the dark brown scales highly iridescent in certain lights; foreleg with tibia and tarsus clothed with dark brown scales except some pure white scales at base and apex of first tarsomere and at base of second tar-

somere, scales of distal three-fifths of femur dark brown, scales of basal part white, trochanter clothed with longer, less appressed, pale yellow scales; middle leg similar to foreleg except tibia with a broad median ring of loose pale yellow scales, the dark scales at apex long, loose, down curved, forming a broad tuft, white scales at base of femur extending along dorsum to apex, tibial spurs dark brown except extreme apex of long, inner spur white; hindleg similar to middle leg except scales of tibia appressed, pale median part white and extending to base along dorsum, basal tibial spurs white except apical half of short outer spur. Venation of wings as for genus, accessory cell very small and narrow as in *effusa*. Wing shape as in *effusa* (figs. 4-6), male with inner margin of hindwing modified, upcurved over abdomen and bearing a tuft of long hairs in the pocket formed on the ventral surface. Pattern of maculation of upper surface of wings as illustrated (fig. 6, female), male resembling female except dark marginal band of hindwing less extensive, reaching only slightly beyond Cu_2 . Ground color of basal part of forewing pale yellow; dark part of dark brown scales some iridescent brassy green in certain lights, some pale blue white scales usually present above tornus in cells Cu_1 and Cu_2 ; Y-shaped transverse line of metallic gray scales heavily bordered by dark brown scales. Hindwing yellow orange except dark brown marginal band, fringe dark with some white at outer edge; ventral surfaces of wings similar to dorsal surfaces except metallic gray Y-shaped transverse line of forewing absent, apical orange spot of hindwing larger and fringe of hindwing mostly white, basal costal band of dorsal surface of forewing absent on ventral surface of that wing in males. Length of forewing: male, 13 to 14 mm.; female, 14 to 15 mm.

Male genitalia as illustrated (fig. 23), very similar to that of *effusa* (fig. 24) except sacculus of left valve distinctly wider than sacculus of right valve, dorsally directed process of sacculus of left valve extending beyond costal margin of valve at a point well below corona, costal spine of sacculus of right valve shorter than distance from its base to apex of sacculus, and costal angle of apex of right sacculus forming a short, triangular projection. Female genitalia very similar to those of *effusa* except right lobe of seventh abdominal sternite weakly sclerotized along median emargination, left lobe of seventh abdominal sternite with a short, blunt projection medially at base of lobe, dorsal sclerotization of vaginal chamber about twice as long as wide.

Type: Type female, Sixaola River, Costa Rica, April 1907, Wm. Schaus (USNM 64639); 1 female paratype, same place, September; and 1 female paratype, Guapiles, Costa Rica, 850 ft. alt., May 1907, Wm. Schaus, in the U.S. National Museum, Washington, D.C. Two male paratypes, Sixaola River, Costa Rica, September, in the Carnegie

Museum, Pittsburgh, Pa. One female paratype, Costa Rica, Nevermann in the Zoologische Sammlung des Bayerischen Staates, Munich, Germany.

Distribution: Known only from Costa Rica.

Remarks: At the beginning of this study I thought the three female examples in the U.S. National Museum probably represented a dark form of *effusa* in which there was a greater development of the dark marginal band of the hindwing. This seemed to be a reasonable conclusion because other species of the genus, especially those of the *splendens* complex, do show considerable variation in the degree of development of the dark marginal band of the hindwings. However, when males became available for study, constant differences, even if slight, were found to exist in the genitalic characters and other differences in maculation were recognized. The broad sacculus of the left valve, the differently directed apical process of the left sacculus, the shorter costal spine of the right sacculus of the male genitalia, the differences in the sclerotized parts of the female genitalia, the heavy dark markings of the forewing, the presence of blue white patches of scales in cells Cu_1 and Cu_2 of the forewing, and the dark fringe of the hindwing (yellow in *effusa*) convinced me that this entity should be considered to be a species distinct from *effusa*.

The known localities for the species are both from the Caribbean side of Costa Rica. It is possible, therefore, that this species is geographically isolated from *effusa*, which may occur on the Pacific side of Costa Rica. Proof of the correctness of this supposition must of necessity depend on further collections of material from that country.

Euseptis irretita Hübner

FIGURES 1, 19

Euseptis irretita Hübner, 1823, Zuträge zur Sammlung exotischer Schmettlinge [sic], Zweites Hundert, p. 21, figs. 305, 306.

Eugraphia irretita (Hübner).—Guénée, 1852, Histoire naturelle des insectes: Species général des lépidoptères, vol. 6 (Noctuérites, II), p. 208.—Walker, 1857, List of the specimens of lepidopterous insects in the collection of the British Museum, pt. 12, p. 776.—Druce, 1889, in Godman and Salvin, Biologia Centrali-Americana, Insecta, Lepidoptera, Heterocera, vol. 1, p. 304.—Hampson, 1910, Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. 10, p. 793, fig. 211.—Strand, 1913, Arch. Naturg., vol. 79 (A), nos. 7–9, p. 62.—Hemming, 1937, "Hübner," vol. 2, p. 198.—Draudt, 1939, in Seitz, Gross-Schmetterlinge der Erde, vol. 7, p. 397.

Noctua melanogramma Perty, 1833, Delectus animalium articulorum quae in itinere per Brasiliam . . . , p. 163, pl. 32, fig. 10.—Walker, 1857, List of the specimens of lepidopterous insects in the collection of the British Museum, pt. 12, p. 776 [as a synonym of *irretita* Hübner].

This species, the type of the genus, is also the smallest species of the genus. It agrees with *E. koehleri*, new species, and differs from the other similarly marked species in that the outer dark costal mark of the forewing is about equal in width to the medial costal mark. *E. irretita* Hübner differs from *koehleri* by its slightly smaller size, by the absence of a loop in the outer costal mark of the forewing immediately above the lower angle of the cell, by the orange terminal line of the forewing not being curved around the apex of the wing, and by the characteristic male genitalia (fig. 19). The valvae of the male genitalia are simple, without spines or processes developed from or immediately beyond the sacculus. Length of the forewing: male, 9 to 10 mm.

Types: The present location of the type of *irretita* is unknown. It may be in the Naturhistorisches Museum, Vienna, Austria. Hübner's type was from Brazil. The type of *melanogramma* was from "Provincia Bahiensi," Brazil. It may be in the collection of the Zoologische Sammlung des Bayerischen Staates, Munich, Germany. At least part of Perty's types were received by that institution.

Distribution: *E. irretita* apparently is restricted to Brazil, possibly to the northeastern part of that country. Only four males have been examined. One is unlabeled, the other three are from Bahia and Pernambuco, Brazil.

Remarks: The illustration of Perty's *melanogramma* appears to be of a female. At least the marginal band of the hindwing is extensive and similar to that of the female of the related *koehleri*.

Method of determination: The species was identified from the excellent illustrations accompanying the original description. Perty's *melanogramma* was recognized as a synonym by means of the good illustration in his work.

Eusceptis koehleri, new species

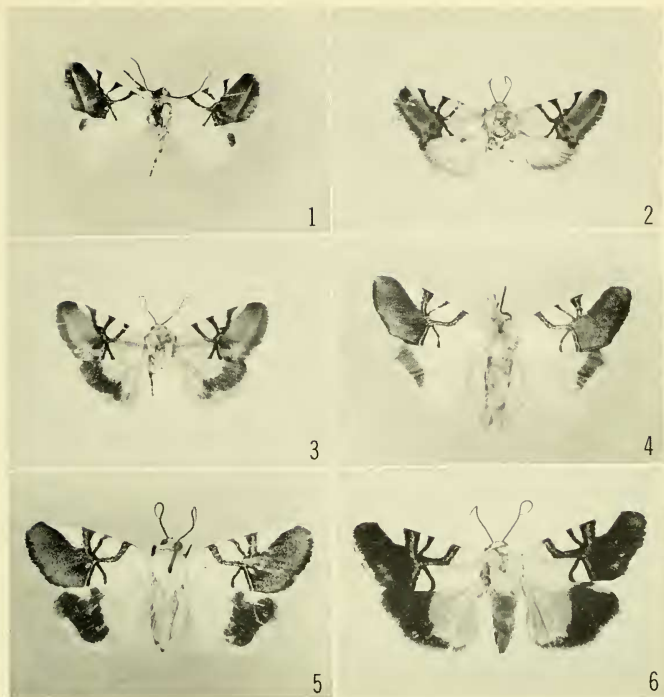
FIGURES 2, 3, 20, 21

Head with proboscis well developed; labial palpi small, very slightly upcurved, apical (third) segment slightly exceeding ventral margin of frons, third segment very short, second segment about four times as long, vestiture mainly of closely appressed pale yellow scales, except longer and looser at venter of first segment and second segment black dorsally and dorsolaterally; frons slightly bulbous, exceeding anterior margin of eye about one-fourth length of eye, rather rough medially, depressed before slightly porrect ventral margin, vestiture of appressed, down and incurved pale yellow scales; eyes large, about equal to frons in width, naked, hemispherical; antennae black, filiform,

densely pubescent ventrally, with minute spicules present laterally and ventrally. Vestiture of patagia, tegulae, and thorax a mixture of pale yellow hair and scales; a slight decumbent, metathoracic crest present. Abdomen orange dorsally and laterally, pale yellow ventrally with lateral and/or terminal black scaling on segments 3 through 7; dorsal tufts absent. Pectus clothed with large, pale yellow or white scales and long, sparse, white hair; tympanum nearly covered by very large alular fan of broad yellow scales. Legs mainly pale basally, dark distally; foreleg with tibia and tarsus dark brown except small white spot at middle of tibia and white rings at base and apex of first tarsomere and apex of second; middle leg pale yellow except for dark brown knee spot, broad apical brown band on tibia (including spurs) and dark tarsus, tarsomeres 1 and 2 marked with white like those of foreleg; hindleg colored like preceding leg except dark knee spot absent. Venation of wings as for genus. Maculation of male similar to that of *irretita* (see figs. 1 and 2), except that outer, dark costal mark of forewing is distinctly looped basad immediately above lower angle of cell and terminal orange line extends around apex of wing. Basal half of upper surface of forewing lemon yellow, transverse lines black, subterminal oblique mark and fringe slate gray. Upper surface of hindwing orange around margins, white medially, a fuscous spot at apex. Ventral surface of forewing with ground color orange, median and apical costal marks, subterminal oblique mark and fringe dark fuscous or black; hindwing ventrally like upper surface except orange of costa brighter and small postmedial and antemedial spots present. Female colored as in male except upper surface of hindwing orange with broad marginal fuscous band, the latter incurved slightly at Cu_2 ; ventrally postmedial fuscous mark extending nearly to anal angle, broadest between M_2 and caudal end, antemedial spot variable in size, absent in one specimen. Length of forewing: male, 12 mm.; female, 12 to 13 mm.

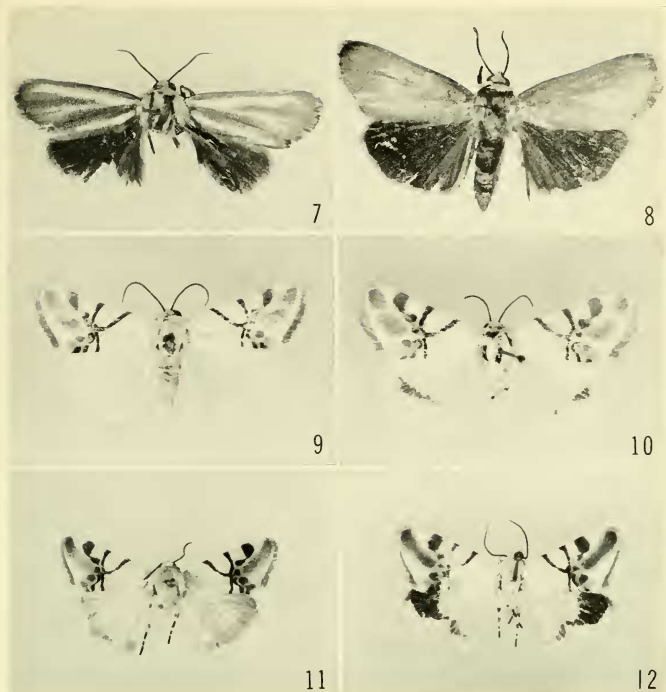
Male genitalia of type specimen partially destroyed by dermestids; however, the valves are preserved and are distinctive (fig. 21). Right valve enlarged, much broader than left valve, sacculus broad, produced and curved toward costa at apex, a longer, curved process developed immediately distad of sacculus from near ventral margin of the valve. Female genitalia as illustrated (fig. 20), ductus bursae broad, rather long, only slightly sclerotized; caudal margin of seventh abdominal sternite not asymmetrical as in the females of the *splendens* complex.

Types: Type male and two female paratypes, Alta Gracia, La Granja, Sierras de Cordoba, Argentina, C. Bruch, in the private collection of P. Köhler, Buenos Aires, Argentina. One female paratype, same data, in the U.S. National Museum.

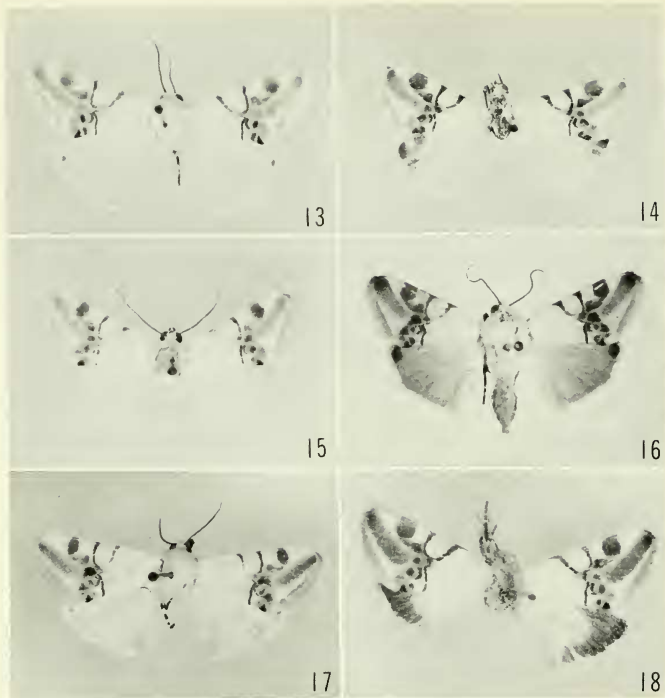


FIGURES 1-6.—Dorsal view of adults of *Euseptis* species: 1, *irretita*, male, Bahia, Brazil; 2, *koehleri*, male, type, Alta Gracia, La Granja, Sierra de Cordoba, Argentina; 3, *koehleri*, female, paratype, same place; 4, *effusa*, male, "Central America"; 5, *effusa*, female, Misantla, Mexico; 6, *atriora*, female, type, Sixaola River, Costa Rica.

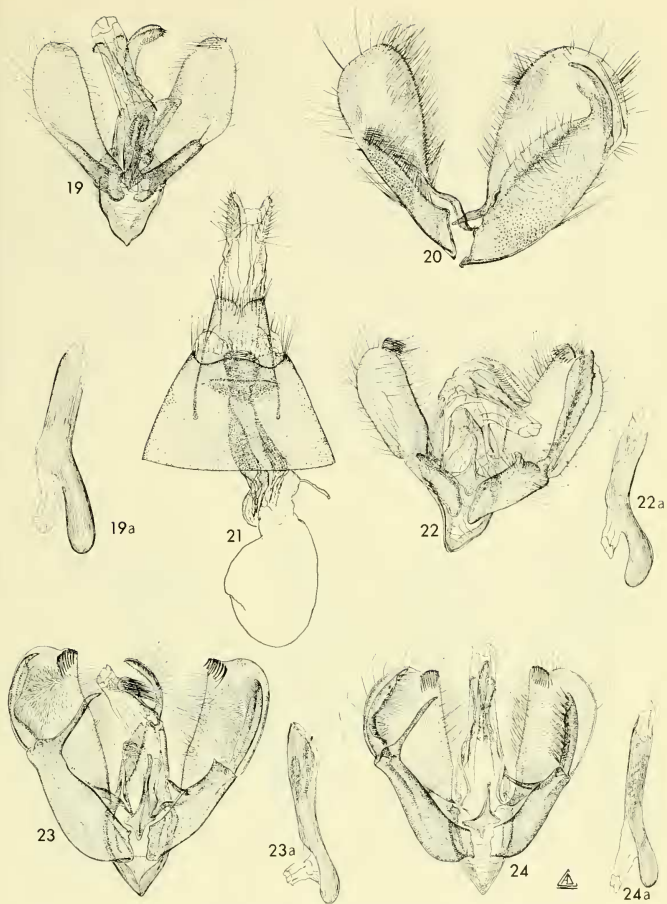




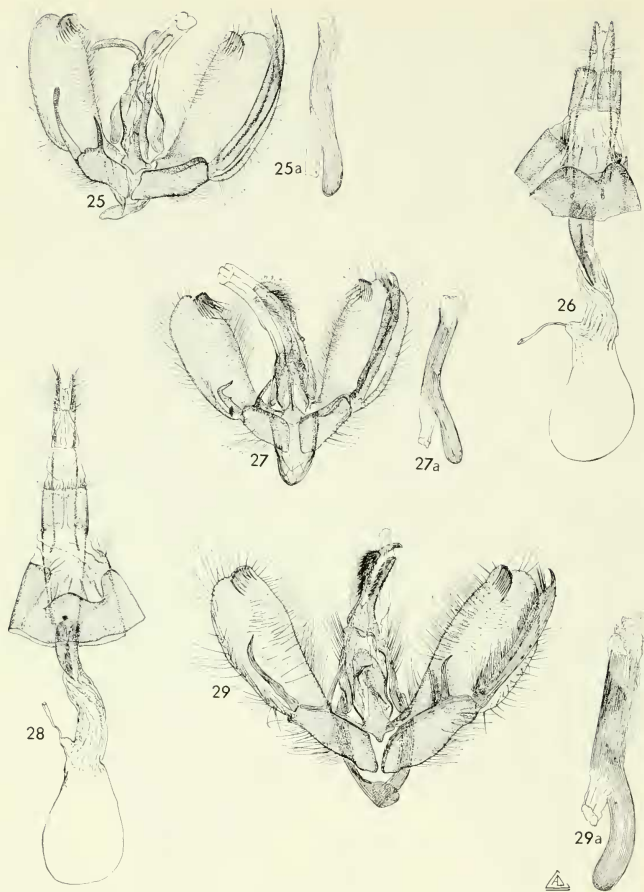
FIGURES 7-12.—Dorsal view of adults of *Eusceptis* species: 7, *obscura*, male, type of *trilinea* Schaus, Jalapa, Mexico; 8, *obscura*, female, type, Guadalajara, Mexico; 9, *robertae*, male, type, Tucumán, Argentina; 10, *robertae*, female, paratype, same place; 11, *paraguayensis*, male, Misiones, Argentina; 12, *paraguayensis*, female, Sapucay, Paraguay.



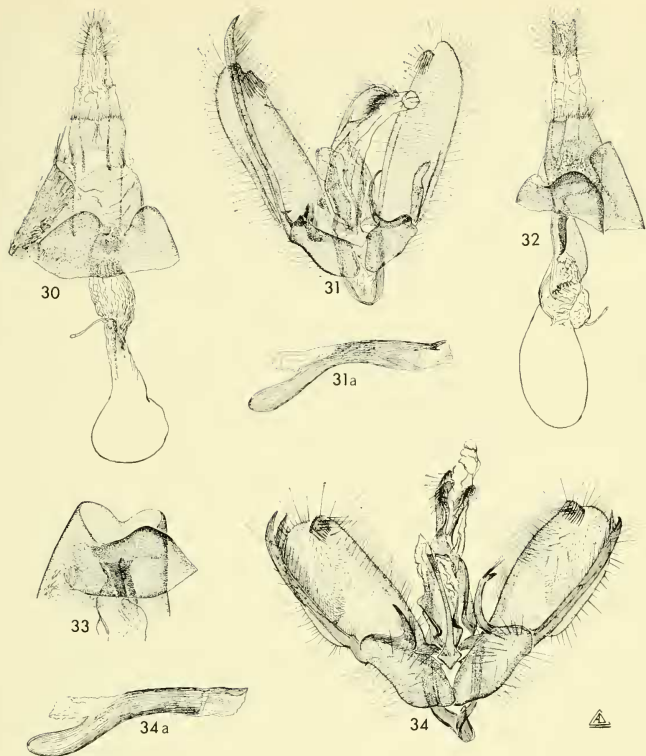
FIGURES 13-18.—Dorsal view of adults of *Eusceptis* species: 13, *lelae*, male, type, Avangarez, Costa Rica; 14, *lelae*, female, paratype, Mexico; 15, *splendens*, male, Zaruma, El Oro, Ecuador; 16, *splendens*, female, Rancho Grande, Aragua, Venezuela; 17, *extensa*, male, Viçosa, Minas Geraes, Brazil; 18, *extensa*, female, Puerto Bertoni, Paraguay.



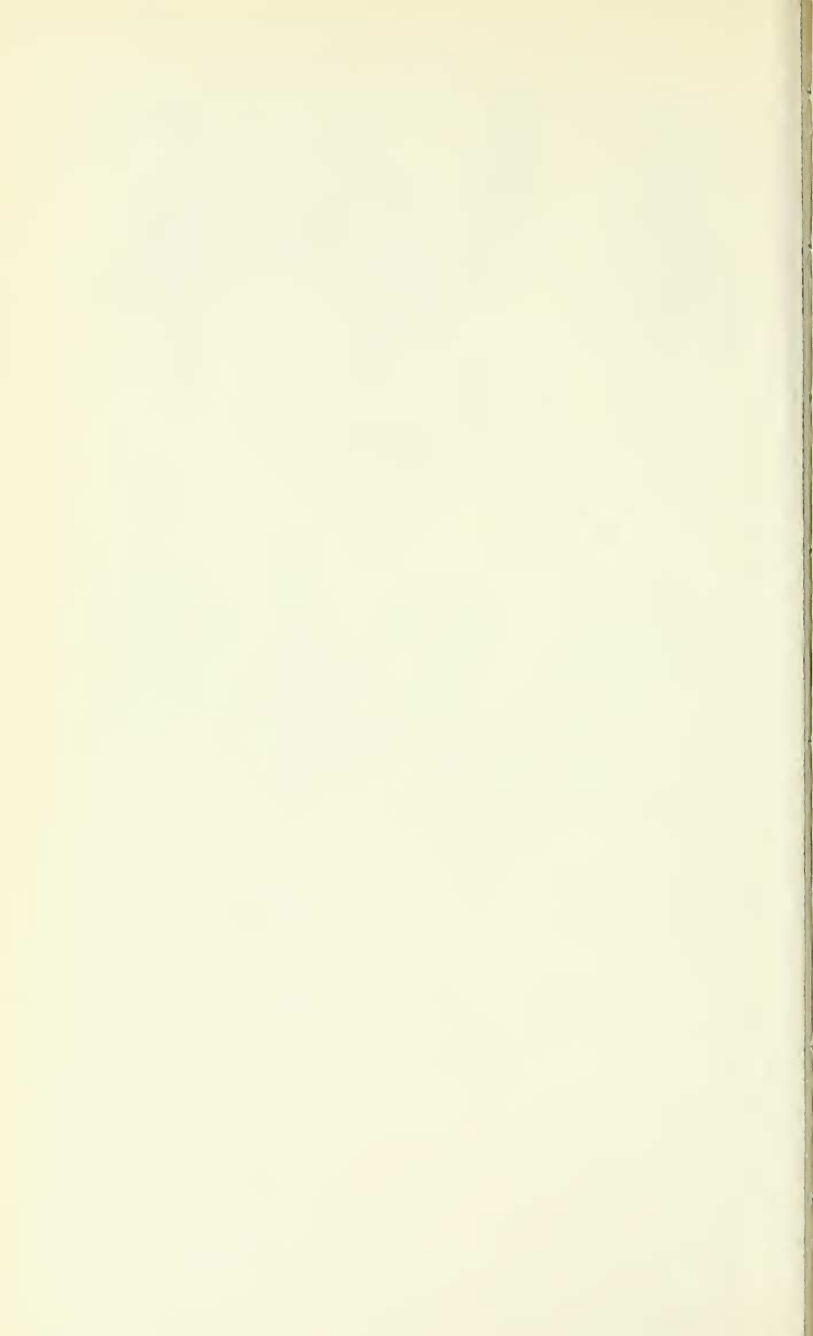
FIGURES 19-24.—Male and female genitalia of *Euseptis* species (aedeagus of male removed and figured separately): 19, *irretita*, male, Bahia, Brazil; 20, *koehleri*, male, type, Alta Gracia, La Granja, Sierra de Cordoba, Argentina (valves only); 21, *koehleri*, female, paratype, same place; 22, *obscura*, male, Guadalajara, Mexico; 23, *atriora*, male, paratype, Sixaola River, Costa Rica; 24, *effusa*, male, Cayuga, Guatemala.



FIGURES 25-29.—Male and female genitalia of *Euscepsis* species (aedeagus of male removed and figured separately): 25, *lelae*, male, type, Avangarez, Costa Rica; 26, *lelae*, female, paratype, Mexico; 27, *splendens*, male, Zaruma, El Oro, Ecuador; 28, *splendens*, female, Aroa, Venezuela; 29, *extensa*, male, Misiones, Argentina.



FIGURES 30-34.—Male and female genitalia of *Eusceptis* species (aedeagus of male removed and figured separately): 30, *extensa*, female, Puerto Bertoni, Paraguay; 31, *robertae*, male, paratype, Tucumán, Argentina; 32, *robertae*, female, paratype, same place; 33, *paraguayensis*, female, Sapucay, Paraguay (ductus bursae); 34, *paraguayensis*, male, Misiones, Argentina.



Distribution: Known only from the type locality.

Remarks: This species agrees with *irretita* and differs from the similarly marked species in that the outer, dark costal mark of the forewing is about equal in width to the median costal mark. The species is slightly larger than *irretita*, has the outer, dark costal mark of the forewing distinctly looped immediately above lower angle of the cell, and has the terminal orange line extending around the apex of the wing. In addition, the male genitalia are specifically distinct.

Eusceptis splendens (Druce), new combination

FIGURES 15, 16, 27, 28

Eugraphia splendens Druce, 1896, Ann. Mag. Nat. Hist., ser. 6, vol. 18, p. 42.—Hampson, 1910, Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. 10, p. 793, pl. 174, fig. 1 [in part].—Strand, 1913, Arch. Naturg., vol. 79 (A), nos. 7-9, p. 62.—Kaye and Lamont, 1927, Mem. Dept. Agric. Trinidad and Tobago, no. 3, p. 66 [in part].—Draudt, 1939, in Seitz, Gross-Schmetterlinge der Erde, vol. 7, p. 397 [in part].

Eugraphia irretita (Hübner).—Weymer and Maasen not Hübner, 1890, Lepidopteren gesammelt auf einer Reise durch Colombia, Ecuador, Peru, Brasilien, Argentinien und Bolivien in den Jahren 1868-1877 von Alphons Stübel, p. 67.

The *splendens* complex is composed of at least five species, some of which have been misidentified as *splendens* or treated as forms or aberrations of that species. The species of this complex (figs. 9-18) may be separated from the other species of the genus by the following combination of maculational characters: hindwing with some orange, yellow, or white, terminal area of forewing with some yellow between vein M_1 and tornus, and outer, dark costal mark of forewing about twice as wide as median costal mark.

The species of the *splendens* complex form three segregates on genitalic and maculational characters. *E. splendens* (Druce) and *E. lelæ*, new species, extremely closely related species, form one segregate. Two other species, *E. paraguayensis* (Draudt) and *E. robertæ*, new species, belong to a second distinct segregate. The fifth species, *E. extensa* (Strand), is intermediate on maculation and genitalic characters and is considered to be a separate segregate. The species and the segregates of the *splendens* complex can be identified by means of the characters utilized in the keys.

The known geographic distribution of the four species of the *splendens* complex in South America is illustrated on map 1. The fifth species, *E. lelæ*, new species, is known to occur in Mexico, Guatemala, and Costa Rica.

E. splendens (Druce) is redescribed in this paper because other species of the complex have been confused with it in the past and

because a detailed description of *splendens* will simplify the descriptions of new species of the complex.

Head with proboscis well developed; labial palpi small, very slightly curved dorsad, apical segment slightly exceeding ventral margin of frons, apical segment very short (0.3 mm.), second segment about three times as long, vestiture mainly of appressed, pale yellow scales except longer and looser along ventral margin of first and second segments, dorsum and dorsolateral area of second segment light brown; frons smooth, scarcely exceeding anterior margin of eye, vestiture of appressed, pale yellow scales; eyes large, hemispherical, naked, about equal to frons in width; ocelli present, moderate, adnate to upper margin of eye immediately caudad of base of antenna; antenna dark reddish brown, filiform, ventral pubescent area wedge-shaped in the male, round in the female, weakly spiculate. Vestiture of patagia, tegulae, and thorax a mixture of pale yellow hair and scales; a slight, decumbent, metathoracic crest present. Abdomen mostly orange dorsally and laterally, the two basal segments pale yellow, the remainder orange, the terminal segments darkest; venter pale yellow except caudolateral angles and terminal margins of sternites light to dark brown, the amount of brown variable, last three sternites of females usually brown; dorsal tufts absent. Pectus clothed with large white, appressed scales and long pale yellow hair and scales; tympanum shielded dorsally by a very large alular fan of very large pale yellow scales. Legs banded with various shades of brown and pale yellow or white scales, foreleg darkest; tarsus of foreleg dark brown except base and apex of first tarsomere and apex of second tarsomere ringed with white, tibia dark brown distally, light yellowish brown basally, a small median white point between the two shades of brown, femur with basal third white, remainder yellowish brown; tarsus of middle leg similar to that of foreleg, white bands of tarsomeres slightly broader, tibia with a broad band of loose pale yellow scales, base yellowish brown, apex darker forming a terminal brush, base and dorsum of femur white, remainder yellowish brown, tibial spurs usually white except basal half of short outer spur yellow brown; hindleg similar to middle leg except white bands of tarsomeres broader, scales of tibia more appressed, pale band white, dark terminal part with shorter scales and forming a shorter less prominent tuft, tibial spurs usually white except basal part of short outer spur of terminal pair yellowish brown. Venation as for genus. Wing shape and pattern of maculation of dorsal surface of wings as illustrated (figs. 15 and 16). Ground color of dorsal surface of forewing pale lemon yellow; transverse lines, oblique subterminal bar and fringe gray brown, subterminal bar darkest toward apex, paler and slightly narrowing toward base, fringe and terminal line